

# MASSACHUSETTS ECONOMIC BULLETIN

July 1992

Labor Force and Industry Research Analysis published by the Department of Employment and Training

## Services and Trade Lead State Job Growth through 2005

Massachusetts is projected to add nearly 420,000 jobs between 1991 and 2005, with an overall growth rate of 15 percent. This is down substantially from the 38 percent growth rate for the 13-year period 1975-1988. Slower growth of the labor force is the major reason for the projected reduction in the pace of future job expansion. National projections show the country's employment growing nearly 23 percent during the same period.

The state will see a continuing trend toward a more service oriented economy. Nearly all of the projected new jobs will be in the service producing sectors: services; wholesale and retail trade; finance, insurance and real estate; transportation, communications and utilities; and government. However, only services will grow much faster than average, and account for approximately two out of three new jobs, and 12 of the 15 projected fastest growing industries (see chart on page 2). Ten industries will generate over 50 percent of all new jobs (see chart at right). Half of these industries are in services, while four are in trade.

Many of the growth jobs will require an increase in the education and skills levels of the workforce, while a majority of the new jobs will require education or training beyond high school. In the rapidly changing health services industry, these jobs include physical therapists, and medical technicians and technologists. Another area where education and skill requirements will in-

crease is computer software and related services. New jobs in software development such as computer programmers, systems analysts, electrical engineers, and technicians all will require increased education.

Jobs in the goods producing sectors--manufacturing and construction--will decline in total. Construction jobs will increase significantly from current depressed levels but the increase will not be enough to offset the job losses in manufacturing. Cutbacks in defense spending will cause some of the manufacturing declines, while imports and productivity improvements will cause other employment declines.

### Recent Economic Changes--Some Causes and Effects

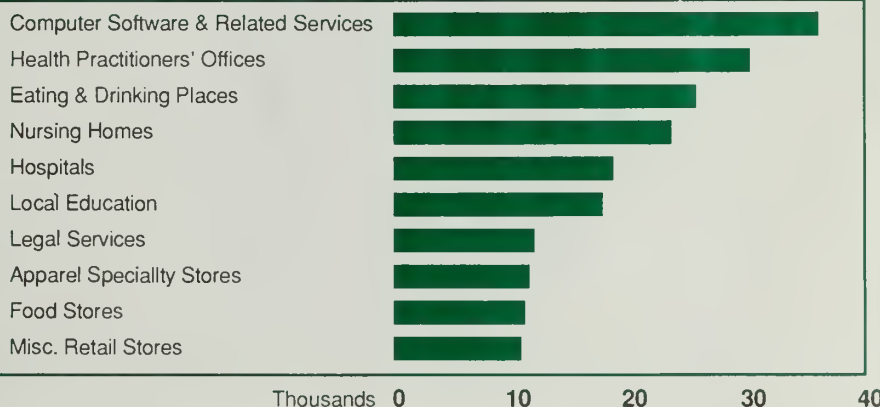
Between 1988 and 1991, Massachusetts lost over 300,000 jobs or about 10 percent of its total employment. In 1991 alone, the state lost a record 162,000 jobs. Job losses were most severe in the

goods producing sectors of manufacturing and construction.

Manufacturing employment, in a continuous long-term decline since 1984, dropped even more sharply in the most recent three-year period. Structural changes in the high technology and defense industries resulted in 100,000 manufacturing jobs lost between 1988 and 1991. This reduced manufacturing's share of total Massachusetts jobs to 17 percent. By 2005 this share is expected to fall to 13 percent.

Construction jobs surged during the mid 1980s. Rising employment, new household formations, and higher per capita incomes contributed to the boom in residential and commercial construction. Since peaking at 142,000 jobs in 1988, however, construction employment plummeted, and by 1991 just over half of those jobs remained. The construction industry is subject to widely fluctuating cyclical patterns, and while employment will rebound by 2005, it is

**Industries Generating Over 50% of New Jobs in Massachusetts 1991-2005**



not expected to approach the levels of the late 1980s.

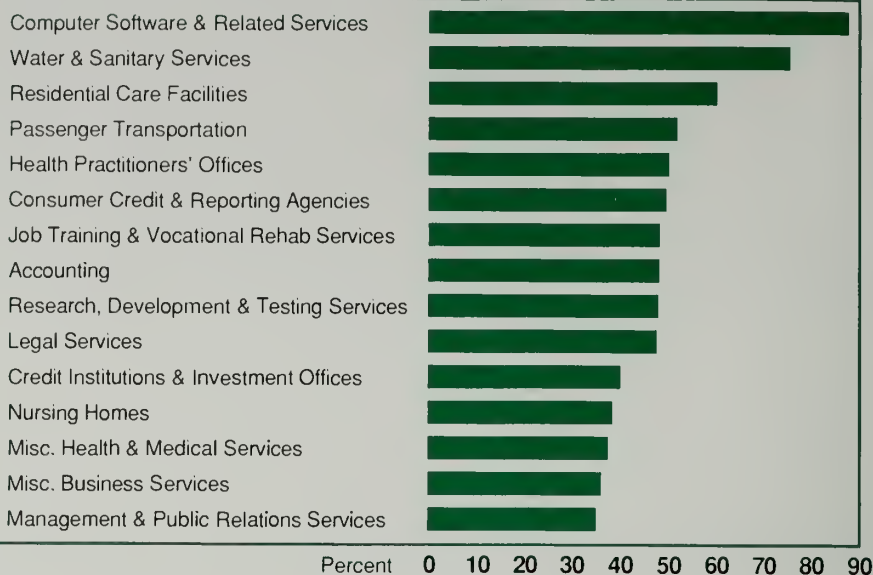
Service employment continued to rise in 1989 before falling off in 1990 and 1991. As Massachusetts' largest sector, services still continues to outperform all other industry sectors, as its share of employment rose to nearly 32 percent. With two-thirds of projected job growth coming from the service sector, its employment share should rise to 36 percent by 2005.

## Services: On the Fast Track

Some of the fastest growing service industries through 2005 will be computer software and related services, health services, and business and management services. The two largest components of services--health and business--will together account for over 50 percent of the increase in service jobs. Two out of three net new jobs between 1991 and 2005 are projected to be in the service industry, generating 36 percent of all jobs.

Massachusetts has made the transition to a more service-oriented economy faster than the rest of the nation. In 1982, services replaced manufacturing as the largest industry sector in the Commonwealth, accounting for one out of every four jobs. By 1991 the service industry accounted for 32 percent of Massachusetts jobs.

## Fastest Growing Industries in Massachusetts 1991-2005



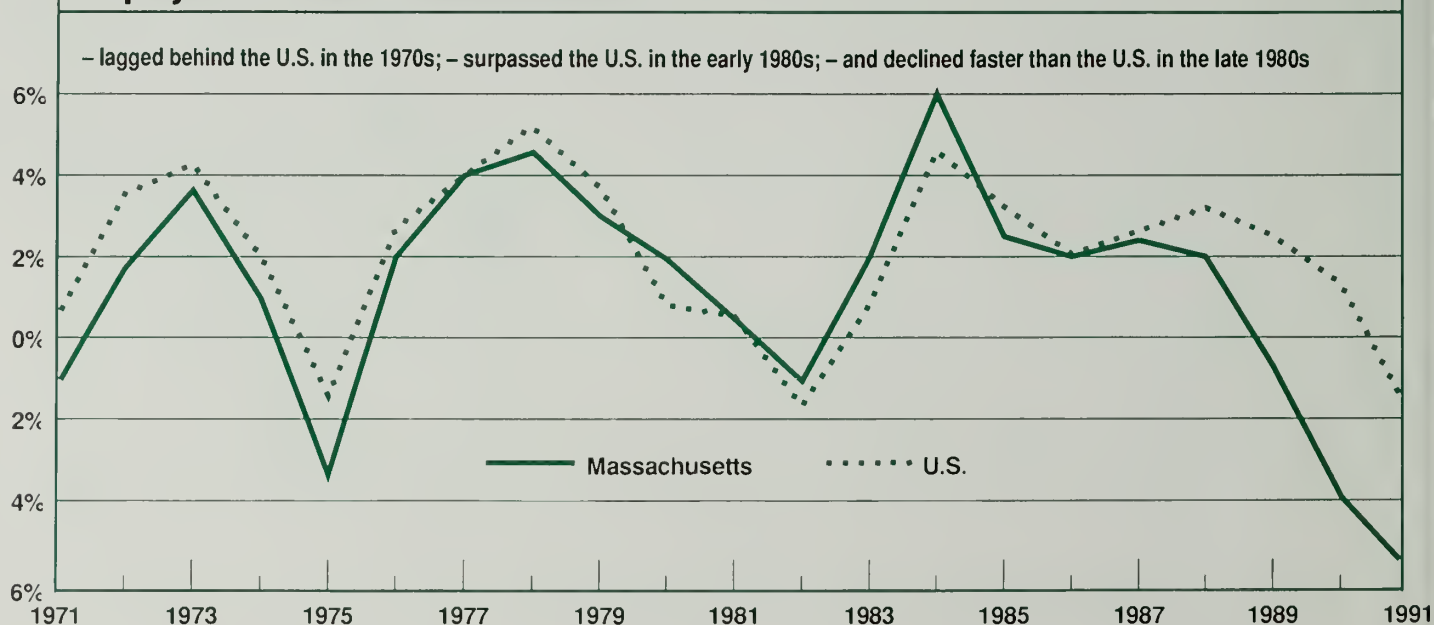
Massachusetts is uniquely positioned in terms of the diversity and the high education and skill requirements of its service sector. Nearly half of all service jobs here are held by professional, technical and managerial workers. The state is known both for its high concentration of ongoing medical research in teaching hospitals and its world renowned educational institutions, and these trends will continue. Massachusetts' technological advances in the health field are exported to the rest of the country and around the world, while many new products and ideas emanate from graduates of area colleges and universities.

## Trade: Stable in the Future

Wholesale and retail trade is the second largest industry sector in Massachusetts. Retail trade accounts for 78 percent of new trade jobs through 2005. The largest of the retail trade industries is eating and drinking places with a projected 34 percent increase, followed by food stores at 13 percent. Wholesale trade will account for 22 percent of trade job increases, but will be closely tied to overall growth in manufacturing, exports, and the economy at large.

The average work week of employees in retail trade is projected to finally sta-

## Employment Growth in Massachusetts:



bilize, after dropping dramatically between 1960 and 1980. This long-term drop was a reflection of a surge in employment of youth and women. When the supply of part-time workers tightened in the 1980s as the teenage labor force declined, there was little further decrease in retail trade average weekly hours.

The projected slower increases in the population and the labor force participation of women will result in fewer women entering the labor force than during the preceding 15 year period. These entrants, however, will be more likely to seek full-time jobs.

## Manufacturing: an Industry in Transition

Manufacturing in Massachusetts has been on a long downward spiral since 1984, losing 27 percent of its jobs. Its share of total employment is down to 17 percent, with some further widespread job losses projected over the next 15 years.

While manufacturing in both Massachusetts and the U.S. declined between 1984 and 1986, unlike Massachusetts, manufacturing in the U.S. rebounded over the next three years in response to lowering of the exchange rate. Manufacturing increases at the national level were primarily concentrated in produc-

tion jobs outside of high tech manufacturing. In Massachusetts, high tech manufacturing comprises 41 percent of the manufacturing base compared to only 19 percent in the U.S.

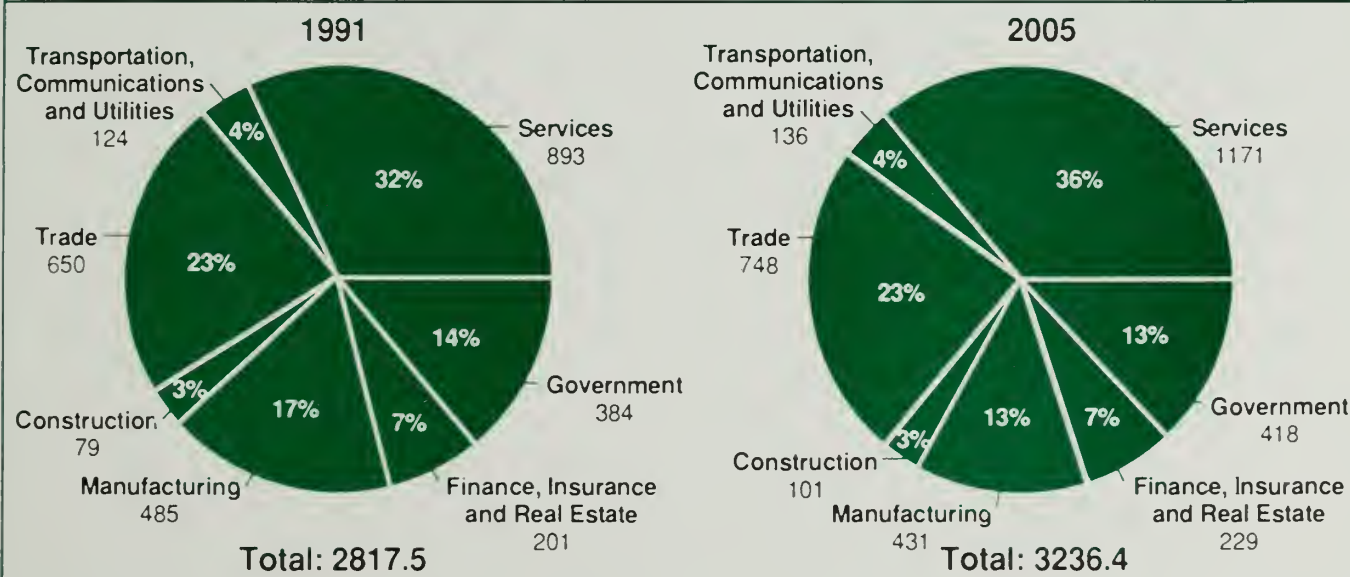
Continued rapid growth of imports and a reduction in defense spending will contribute to the manufacturing employment decline in Massachusetts. However, despite employment decreases, the output of most manufacturing industries will increase. Expected improvements in productivity will cause many industries to become more competitive in world markets. This

should result in a significant rise in exports, reducing the employment decline that otherwise would have occurred.

While Massachusetts has often been at the forefront of technological innovation, it is losing its comparative advantage in a changing global economy. The computer and electronics industries will not be the engines of growth that they were in the past. Biotechnology and environmental related industries hold the most hope for the future, but the size of these industries currently is small, and the numbers of jobs created will thus be limited.

Projected Job Growth by Sector	1991	2005	Net Change	% Chg
<b>Total</b>	<b>2817.5</b>	<b>3236.4</b>	<b>418.9</b>	<b>14.9</b>
Construction	79.3	100.8	21.5	27.1
Manufacturing	484.7	431.4	-53.3	-11
Transportation, Communication & Utilities	124.2	136.1	11.9	9.6
Trade	649.6	748.3	98.7	15.2
Finance, Insurance & Real Estate	201.2	229.2	28	13.9
Services	892.9	1171.0	278.1	31.2
Government	384.4	418.4	34	8.8

## Massachusetts Jobs by Industry (in thousands)



## Public Works Will Boost Construction

Construction jobs in Massachusetts peaked in 1988 but have declined 44 percent over the last three years. Despite a projected growth rate of 27 percent by 2005, construction employment is expected to return only to its 1990 level. In the 1973-75 recession, the sharpest decline in jobs occurred in construction, and it took 13 years for job levels to finally surpass their pre-recession high of 1972.

Nearly two out of three construction jobs in Massachusetts are in special trades, such as HVAC contractors, electricians, plumbers and pipefitters. This is a larger share than for the rest of the U.S. because the older age of Massachusetts' housing stock, the harsh New England climate, and per capita incomes above the national average create a greater demand here for home repairs and renovations. Massachusetts also has a relatively larger share of construction employment in the slower growing area of residential building construction than the rest of the U.S.

Slower growth in population, employment and household formations should dampen demand for new residential and commercial construction, but public works construction and renovation work from plants, schools, hospitals and homes should remain strong. Public works construction and major infrastructure projects will provide a much needed boost to the industry during the projections cycle, but these projects are expected to be completed well before 2005.

## Outlook Mixed for Other Sectors

Job growth in the finance, insurance and real estate; transportation, communications and utilities; and government sec-

tors are all projected to grow slower than the state's overall job growth rate. Some individual industries, however, should generate strong job growth, such as the environmentally sensitive water and sanitation service industry, the security and commodity brokers industry (where the state has a very strong presence in the mutual fund segment), credit institutions, and passenger transportation services.

## Full Report Released This Summer

*"Massachusetts Industry Projections: 1991-2005,"* will be available this summer. It examines the industrial trends shaping the Massachusetts economy through the year 2005 and will include detailed industry employment estimates.

Next winter, the complementary report *"Massachusetts Occupational Projections: 1991-2005,"* will be published. It will include not only information on occupational demand attributed to industry growth, but the even larger replacement needs for those leaving existing jobs. Employment counselors, job seekers, educators, job developers, career planners, and human resource specialists in both the public and private sectors will find this information particularly useful.

To obtain copies of either of these reports, call (617) 727-7434, or write to the Department of Employment and Training, Economic Research and Analysis Service, 19 Staniford Street, Boston, MA 02114.

## Key Economic Trends for 1991-2005

- Labor force growth will slow and labor force participation rates will increase at a slower rate.
- Slower growth will occur in the 16+ population and there will be an aging of the overall population.
- There will be smaller increases in the participation of women in the labor force.
- Labor force growth will be more rapid for minorities.
- Both population and labor force growth will be much slower in Massachusetts than in the U.S., due to lower birth rates, an older population, and very little net in-migration.
- The rate of job growth in Massachusetts will trail the nation, while both Massachusetts and the U.S. will show slower job growth than during the 1975-1990 period.
- The Massachusetts service sector, characterized both by its diversity and the high education and skill requirements of many of its jobs, will account for about two-thirds of all new jobs and 36 percent of total jobs.
- Manufacturing will continue its long-term slide with even high technology manufacturing industries showing some erosion.
- Two recessions are likely to occur during the target period in addition to the current downturn.



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# MASSACHUSETTS ECONOMIC BULLETIN

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## D.E.T.'s Environmental Industry Report is Survey for the Future

Massachusetts has long been a leader in protecting public health and environmental resources. And with more than 140 colleges and universities preparing the workforce to solve environmental problems, the Commonwealth has become home to some of the largest, most diverse and competitive environmental companies in the world.

What are the current and future employment and training needs of this emerging industry? In a recently released report, *Massachusetts Environmental Employment and Training Needs Survey*, the Department of Employment and Training Field Service Research Department surveyed a cross-section of these firms to determine the answer, and to gain a better understanding of the hiring needs and practices of this industry in Massachusetts.

Approximately 80 companies were targeted and 55 interviewed between March and May 1992. The number of employees per firm ranged from 13 to 1,000. Because of the relatively small size of the sample, the findings are not intended to be definitive. However, the report does show trends and tendencies among selected companies in an emerging industry.

The report contains sections on employment outlook; employment and recruitment patterns; export behavior; education, training and experience requirements; recruitment difficulties; and the

potential role of state government. Among the report's findings:

- 55 of the firms surveyed were "cautiously optimistic" about the employment outlook in environmental companies.
- Strong job growth will probably be concentrated in a few industry segments, particularly engineering and design services. Much of this projected growth will be in occupations requiring an extensive technical background, as well as high levels of expertise. This sheds some light on why employment and training concerns of these firms revolve mostly around access to highly educated and experienced technical personnel from colleges, universities and other firms.
- Reflecting the current slowdown in the economy at the time of the survey, demand for entry-level and lower-skilled occupations was more limited. A few firms that had recently laid off workers were nevertheless seeking candidates in professional specialties.
- Retraining laid-off engineers in environmental specialties might be explored as a potential response to alleviate cutbacks in high tech and defense related industries.
- Skill enhancement or upgrading was mentioned as a critical need by a number of employers. As firms move to

high performance work environments, especially in manufacturing, improving the skills of the existing work force will be essential and continuous. These improvements are viewed as a cornerstone for generating the productivity gains necessary to compete successfully in a global marketplace.

- Both manufacturers and service providers would welcome additional education and training programs on regulatory compliance issues (especially OSHA regulations pertaining to hazardous waste operations). These might include new or more frequently offered certificate programs in energy conservation, chemical lab technician and lead paint removal, for example.
- For most of the manufacturers interviewed, environmental products and applications were not the sole, or even primary source of business. However, every business surveyed was involved in exporting these products. Export markets were universally identified as offering tremendous growth potential.

Assisting with the report were the Commonwealth Career Center, Massachusetts Occupational Information Coordinating Committee, Bay State Skills Corporation, and the Massachusetts Environmental Business Council. To obtain a copy of the full report call Field Service Research at (617) 727-6718.

continued on back page

# Recession Erodes Personal Income Growth

An important indicator of a state or region's economic performance is the income growth attained by residents over time. Economists have theorized that the current recession has hindered the ability of the Massachusetts economy to generate income gains. Now, revised data recently released by the U.S. Commerce Department for 1986 through the second quarter of 1992 bears this theory out.

One way to measure income growth is **total personal income**. It includes three broad categories: earnings, property and dividend income, and transfer payments (mainly federal or state cash assistance and benefit programs such as food stamps, Medicare or Medicaid).

In all of 1991, the level of total personal income in the Commonwealth grew by 1.7 percent. This ranked Massachusetts last among the 50 states, and the only state to register a growth rate of less than 2 percent. Between the second quarters of 1991 and 1992, total personal income rose by 3.9 percent, putting the Commonwealth forty-third among the 50 states. This equaled the rate for New England, but was below the national average of 4.7 percent.

Total personal income adjusted for inflation, however--called **real personal income**--is estimated to have fallen 3.5 percent during the current recession in Massachusetts. The recession's impact becomes apparent when recent trends in each category are examined:

Between 1988 and 1992:

- resident earnings declined around 10 percent in real terms due to extensive job losses and minimal wage growth.

- income derived from interest bearing assets and rental properties fell by 5 percent after inflation, as a result of declining interest rates and plummeting real estate values.

- transfer payments, the only component of total personal income to post a gain, swelled by approximately 33 percent in real terms. The increase was due to programs such as unemployment insurance, Aid to Families with Dependent Children (AFDC), Medicare and Medicaid that have helped provide an economic cushion for Massachusetts residents during the course of the recession.

Another income measurement often used by economists and policymakers is the level and change of **per capita**

**income**, calculated by dividing total personal income by the total population count in a geographic area. Per capita income is influenced by trends in both total personal income and population levels, much as the unemployment rate is affected by both the number of unemployed and the size of the labor force. Data on per capita personal income trends paint a mixed picture of recent income performance in Massachusetts.

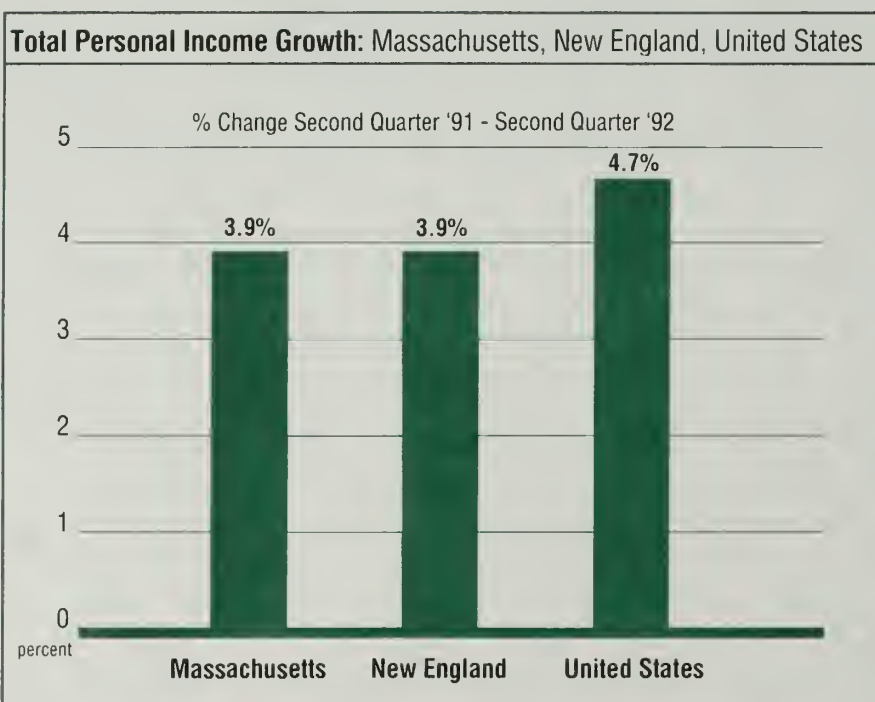
Due to strong job growth and rising real estate values during the '80s' economic expansion, Massachusetts achieved healthy gains in per capita income. Current data show that Massachusetts' level of per capita income reached \$23,000 in 1991, third highest among the 50 states, and trailed only Connecticut and New Jersey. The rate of growth over 1990 was 2.1 percent, thirty fourth in the country.

But a closer examination of the per capita income equation in Massachusetts reveals that income growth was, in reality, worse than the data indicated. The reason per capita income growth did not appear weaker last year was because Massachusetts was one of only four states that lost population. During 1991, the total resident population level in Massachusetts fell by 24,000, a decline of 0.4 percent. Only New Hampshire lost population at a faster rate last year - 0.6 percent.

However, two positive developments did result from the current economic climate — low inflation and drastically reduced interest rates:

- The annualized inflation rate for the greater Boston area was 2.1 percent between September 1991 and September 1992, with costs stabilizing or subsiding in most components of the Consumer Price Index (CPI).

- With mortgage interest rates at 20 year lows, people who held adjustable rate mortgages or those able to take advantage of the rates by refinancing existing ones created an additional pool of income. Many businesses



have also used the present economic environment to refinance or retire debt as well. But both consumers and businesses appear to be using the extra money to work down their debt levels, rather than boosting their spending to a significant degree, especially in New England.

In summary, Massachusetts posted strong personal income gains during the '80s' expansion, as growth in high technology manufacturing, construction, finance and services generated thousands of high wage jobs. Rising real

estate values also contributed to solid increases in property and rental income.

But the recession that began in Massachusetts during early 1989 has resulted in a decline in real personal income. Since then, reduced interest rates have helped relieve some of the financial strain on both consumers and businesses. A low interest rate environment should translate to increased capital spending in the near future. However, only a recovery in both the job and real estate markets will result in growth once again for the personal income of Massachusetts residents.

### Total personal income and per capita income in the U.S.

The relative severity of this recession among various regions of the country is underscored by the personal income data. The states with the slowest income growth in the nation between the second quarters of 1991 and 1992 were California, Florida, Massachusetts, Illinois, and Michigan. These midwest and coastal states have suffered from both large job losses and high unemployment rates. In contrast, seven of the 10 states with the fastest personal income growth rates during this time were located in the Pacific Northwest and Mountain states.

In the U.S., per capita income grew by 2.4 percent (in nominal terms) during 1991, the slowest growth rate posted since comparable figures became available in 1969.

## Seasonal Work Changes for 1993

Many Massachusetts employers do business in direct relation to the four seasons. And, certain employees who work for these businesses are able to collect unemployment compensation once these seasons end. In January 1993, however, one amendment to the Employment and Training law could alter this situation for both employers and employees whose seasons run for fewer than 16 weeks.

The first portion of the amendment states that unemployed seasonal workers may collect unemployment benefits only during a designated seasonal period unless they have earned wages in non-seasonal employment. The second part allows employers who run companies, or have occupations within their companies that are dependent on the seasons to apply for "seasonal status". This status will give these employers the opportunity to pre-designate their employees as seasonal workers, helping to simplify both their role and the D.E.T. role in determining benefit eligibility.

To receive seasonal status from D.E.T., a company must voluntarily apply in writing and fall into one of three categories: 1) operate for fewer than 16 weeks during the year in direct relation to climatic conditions; 2) operate during a period of fewer than 16 weeks because of the nature of the product or service provided; or 3) operate for more than 16 weeks but have distinct occupations that are filled for fewer than 16 total weeks during particular seasons of a year.

In addition to providing written applications, no later than 60 days before the beginning of the season, employers must post notices provided by D.E.T. Employees also must be told, in writing at the time of hire, that the job is seasonal, and therefore restricts their eligibility to receive benefits. Once certified, all wages paid to seasonal workers during the designated seasonal period will be tracked and reported on special forms provided by D.E.T. For information on how you can apply for seasonal status, please contact the Seasonal Employer Certification Unit at 617-727-7357.

## Labor Surplus Areas Announced

The federal government has declared the following Massachusetts cities and towns to be labor surplus areas eligible for federal purchasing contract preference. Designations are from October 1, 1992 through September 30, 1993.

Abington, Acushnet, Adams, Amesbury, Ashburnham, Ashby, Athol, Attleboro, Auburn, Avon, Ayer, Barnstable, Barre, Becket, Bellingham, Berkley, Bernardston, Billerica, Blackstone, Blandford, Bourne, Boylston, Brewster, Bridgewater, Brimfield, Brockton, Brookfield, Carver, Charlemont, Charlton, Chelsea, Cheshire, Chester, Chesterfield, Chicopee, Clinton, Cummington, Dartmouth, Dennis, Dighton, Douglas, Dracut, Dudley, East Bridgewater, East Brookfield, Eastham, Edgartown, Erving, Everett, Fairhaven, Fall River, Falmouth, Fitchburg, Franklin, Freetown, Gardner, Gay Head, Gloucester, Grafton, Groveland, Halifax, Hanson, Hardwick, Harwich, Haverhill, Hinsdale, Holland, Holyoke, Hopedale, Hubbardston, Hull, Huntington, Kingston, Lanesbough, Lawrence, Lee, Leicester, Leominster, Leyden, Lowell, Ludlow, Lunenburg, Lynn, Malden, Mansfield, Marion, Marshfield, Mashpee, Medway, Mendon, Merrimac, Methuen, Middleborough, Middlefield, Milford, Millbury, Millville, New Bedford, New Braintree, Newburyport, North Adams, North Brookfield, Northbridge, Norton, Oak Bluffs, Oakham, Orange, Orleans, Otis, Oxford, Pembroke, Petersham, Phillipston, Pittsfield, Plainfield, Plainville, Plymouth, Plympton, Provincetown, Quincy, Raynham, Rehoboth, Revere, Rockland, Rockport, Rowe, Royalston, Salisbury, Savoy, Shelburne, Somerset, Southbridge, Spencer, Springfield, Sturbridge, Swansea, Taunton, Templeton, Tewksbury, Truro, Tyngsborough, Uxbridge, Wales, Ware, Wareham, Warren, Warwick, Washington, Webster, Wellfleet, Wendell, West Bridgewater, West Brookfield, Westminster, Westport, Whitman, Williamsburg, Wilmington, Winchendon, Windsor, Worcester, Yarmouth.

## Profile of the Environmental Industry

Here is a current overview of the diverse components within the Massachusetts environmental industry. Below are some of the goods and services produced in each industry segment:

### Services

**Analytical Services** include laboratory and on-site testing of air, soil, waste, water, chemicals and other analytical services.

**Energy Services** such as renewable and alternative energy management, conservation, systems consulting, clean coal technologies, electric and magnetic field exposure management and other energy consulting services.

**Engineering and Design Services** include geotechnical and hydrological services; landfill and sewer design; waste disposal and water treatment design; noise abatement; pollution control systems design; audits (such as environmental, health, safety, fire and feasibility); hazard and risk and economic impact assessments; air, water and soil analysis; chemical and hazardous waste treatment; nuclear site cleanup; asbestos abatement; air and water pollution control; emissions monitoring; and consulting services.

**Operational Services** such as waste hauling, disposing, recycling, incineration, composting, sludge management, recycling, construction, asbestos abatement and removal, underground tank services, project management and off-site treatment.

**Professional and Support Services** include legal, financial, insurance and consulting firms, education and training, human resource management, technology transfer, research and development.

### Manufacturing

**Consumer and Industrial Products** include energy efficient lighting products and appliances, water saving devices, products and packaging made from recyclable materials, pumps and other industrial products.

**Energy Equipment** such as energy efficient motors, industrial lighting, power plant controls, photovoltaic cells, HVAC control systems, instrumentation monitoring, testing and other energy equipment.

**Environmental Equipment** includes oceanographic instrumentation; air, water and soil monitoring instrumentation; ecosystem, gas and other environmental analysis equipment; air, soil and waste treatment equipment; waste recovery and processing equipment; water cleanup treatment equipment; solvent/oil/coolant recovery systems; on-site cleanup equipment such as incinerators and scrubbers; noise, vibration and other pollution control equipment; chemical, refuse, landfill and radioactive waste disposal equipment such as containers and compactors.

**E** Department of  
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### DET Services

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